1855MNRAS..15...87P

By 12 similar distances between Oct. 31 and Nov. 3, the chron. was found,—

1854, Nov. 1, $48^m\ 9^s{\cdot}9$ fast on G.M.T.

By 8 similar distances between Nov. 30 and Dec. 1, the chron. was found,—

1854, Dec. 1, $52^m\ 19^s{\cdot}8$ fast on G.M.T.

The partial results are good, but not extraordinary. The excellence of the *means* arises from the number of observations and the compensation of the opposite errors.

The chronometer seems to have performed with great regularity, as the rates from the above data are,—$8^s{\cdot}4$; $9^s{\cdot}1$; $7^s{\cdot}9$; $7^s{\cdot}2$; $8^s{\cdot}1$: all gaining.

The computed error of the chronometer from the above *errors* and *rates*, deduced solely from lunar distances, was verified at Calcutta and the Cape by the time-ball, and on the return to England by the maker; the differences amounted only to a few seconds.

The observations from which these results are deduced were taken while the moon was between new and full, and generally between 6^h and 10^m P.M.,—a time which best suited Captain Toynbee's convenience. He proposes hereafter to try morning observations, by which an independent error and new rate will be determined every fortnight. Whether this will repay the trouble depends on the chronometers, which, if good, and more than one in number, should keep the Greenwich M.T. for a month pretty safely. Towards the end of a voyage, the error of the chronometer cannot be too carefully determined, and once a fortnight is not too often.

Captain Quihampton says that he should have been a degree out of his reckoning if he had relied on his shore-errors and rates; but by his lunar rates he made the Island of Flores and the Islands of Scilly within a very few miles.

On the Orbit of α Centauri. By Eyre B. Powell, Esq.

In this paper the author gives the details of an investigation of the orbit of *α Centauri.* Two sets of elements are deduced by him. The following is the second set, which he appears to have derived from equations of condition involving the corrections of the original elements:—

$\tau = 1858{\cdot}012$
$\pi = 29^\circ\ 33'$
☊ $= 177\ 50$
$\gamma = 77\ 50$
$e = {\cdot}966$
$n = 4^\circ{\cdot}78$ $\quad P = 75{\cdot}3$ years
$= 30'$

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The following is a comparison between the results of these elements and the corresponding results of observation, where P_c denotes the calculated and P_o the observed angle of position; and D_c the calculated and D_o the observed distance.

Date.	P_c	P_o	P_c—P_o	D_c	D_o	D_c—D_o	Observer.
	° ′	° ′	′	″	″	″	
1826·012	212 23	213 11	−48	20·66	22·45	−1·79	Dunlop
1830·012	214 46	215 2	−16	19·1	19·95	− ·85	Johnson
1834·79	218 15	218 30	−15	16·84	17·4	− ·56	Herschel
1837·34	220 32	220 42	−10	15·48	16·11	− ·63	Herschel
1846·866	235 33	234 18	+75	9·85	9·82	+ ·03	Jacob
1848·023	238 53	237 59	+54	8·61	8·05	+ ·56	Jacob
1850·956	251 13	250 43	+30	6·5	5·97	+ ·53	Jacob
1853·049	266 15	267 34	−79	5·03	4·55	+ ·48	Jacob
1854·003	276 19	276 20	− 1	4·45	4·21	+ ·24	Jacob & Self
1854·632	284 19	283 32	+47	...	...	...	Self

The author remarks that the time of the next periastral passage probably lies between 1857·5 and 1858·5, and that the semi-axis major of the orbit is a little greater than 30″.

The following is a letter from Mr. Hind to Admiral Smyth in reference to the orbit of the same star:—

"I believe a paper upon the elements of *α Centauri* was referred to you for report yesterday. I have recently deduced an orbit for the same star, not being aware that any one else was engaged upon the same investigation. My results, in which I have some confidence, are founded upon all the micrometrical measures from 1834 onwards, including the excellent series by Capt. Jacob down to the present year. I have thought you might like to have the elements for comparison with those given in the communication to the R.A.S. which I have not seen:—

Per. pass.	1859·42
☊	16° 42′
λ	26 2
Eccentricity	0·7752
Mean annual motion	+ 4°·448
γ	62° 53′
α	13″·57
Period	80·94 yrs.

"These elements agree very well with the observations, so far as I have examined them.

"*Dec.* 9, 1851."

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